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A Publication Of The San Diego National Wildlife Refuge Complex



Around The Complex

Mendel Stewart, Project Leader, San Diego NWR Complex

In the late 1990s, I worked in the headquarters office of the National Wildlife Refuge System in what was then the Branch of Planning and Policy. "Biological Integrity, Diversity, and Environmental Health" was one of the policies I worked on.

At that time, the Service was using "Ecological Integrity," as shorthand for the mandate in the National Wildlife Refuge System Improvement Act requiring the Secretary - later defined in policy as refuge managers - to "(B) ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americas." This policy basically provides refuge managers with an additional directive while achieving refuge purpose(s) and the Refuge System mission. The policy was completed after my departure and turned out to be a very important factor in the implementation of the Refuge Improvement Act.

In addition to other things, the policy provides refuge managers with a process to analyze the needs of individual refuges and then recommend the best management direction to prevent further degradation of environmental conditions; and where appropriate and in concert with refuge purposes and Refuge System mission, restore lost or severely degraded components.

I recall one concept, then termed "natural" conditions, as being particularly difficult to address during the policy's early development. Much debate took place about what constituted "natural" in terms of trying to restore lost or severely degraded components. The final version of the policy changed "natural" to "historic" and defined it simply as the landscape condition prior to significant, human-caused change.

In an early version, we described a spectrum across the Refuge System from less impacted landscapes to severely impacted ones - basically, more natural refuges to less natural ones. The analogy used at the time was that Arctic National Wildlife Refuge was at one end of the spectrum and, mostly in jest as I recall, that refuges in San Diego, CA, were at the other. Little did I know that I would later become project leader of the San Diego Refuge Complex.

Five years have passed and I have come to know the San Diego refuges well; I now deeply appreciate the lands, and the species that inhabit them. San Diego County, known as a biodiversity hotspot, harbors a number of species that represent a fascinating variety of forms. Unfortunately, the joke about being on the opposite end of the spectrum is to some degree true. The problems associated with urban sprawl and an ever-growing population impact these lands and species, and often make managing the lands difficult. *Continued, page 3*

The Persistence of Life

Brian Collins, *Wildlife Biologist, Coastal Refuges*



The fragility and persistence of life is a theme that is much in my mind this nesting season. Our coastal ecosystem from the border to

San Diego Bay is both teeming with life and struggling with death and disorder. The nesting season is well underway with thousands of pairs of seabirds nesting on the levees of south San Diego Bay and on the beaches and marshes of the Tijuana Slough, the Silver Strand, Coronado and Sweetwater Marsh.

Last week we watched as thousands of elegant terns wheeled and turned like a school of fish in the sky over south bay, sometimes looking like a scarf blowing in the wind, sometimes looking like each side of a zipper being undone, sometimes spinning in a gyre a thousand feet or more in the air. When I looked through binoculars, I could see why they were acting this way. A peregrine falcon was tearing through their nesting area, climbing and stooping on them again and again. I couldn't see if it actually took any terns; it might just have been playing a deadly cat and mouse game, as its crop looked full to me. Maybe peregrines do that just because they can, who knows. They are definitely the boss birds in the sky. After ten minutes or so, she left and the terns settled back down to their nests, maybe one or two fewer from the thousands who had taken flight a few minutes before.

California least terns are nesting in various places around the bay. Over 120 pair even nest on the tarmac at Lindberg Field. If you ever fly out of Lindberg, look to your left or right as your plane taxis out in preparation for takeoff. There are little 8" tall fences along the taxiway. Those are "chick fences". They are there to keep least tern chicks that

will hatch later in early June from wandering onto the runways and taxiways. Believe it or not, Lindberg is one of the better places for least tern reproductive success in the region. The reasons for that is lack of competition from other species for nesting sites, and really dedicated management of the birds by personnel hired by the Port of San Diego.

Here at the Chula Vista Nature Center, our light-footed clapper rail pairs continue to reproduce themselves with great success as part of our Captive Propagation Program for this endangered species. One of the great things about having these secretive marsh birds in captivity is our ability to video monitor their most intimate behaviors within the nest. Today we were charmed to observe the female adult rail brooding her second clutch of eggs for the season. But, amazingly alongside her was one of her chicks from her first clutch of the season. This chick is the rail equivalent of a human pre-teenager, and even more amazing, the chick was helping the parent brood the second clutch as if this was the most natural thing in the world. For that matter it may be; I don't believe this behavior has been observed and recorded before in the wild.

Sometimes we have to make the most of little miracles. We have a blind screech owl here at the Nature Center named "Nipper." Well, Nipper laid some eggs this year, even though she has no mate. The staff at the center let her brood these eggs so she will stop laying for the season and thus not cause herself a calcium deficiency. Meanwhile, one of our captive pairs of burrowing owls laid a clutch of eggs, nine out of the ten eggs were infertile, and a single egg hatched. The little burrowing owlet could not be left with its parents because their enclosure is exposed to ants and the keepers were worried that the ants would kill this little chick. So, the burrowing owl chick was presented to Nipper. She immediately took it under her wing, began grooming it,

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Changes Began with Small Steps

San Diego Bay Refuge provides a good example. Prior to 1859, the natural condition of the south end of the bay was relatively unaltered. In the 1870s, habitat losses began with the construction of a small-scale solar salt evaporation facility. Between 1900 and 1916, the area was expanded to include most of the south end of the bay. The salt marsh and intertidal mudflat habitats that had historically occupied this area were eliminated by the formation of the diked evaporation ponds.

In 1999, the area of the salt works joined the National Wildlife Refuge System because even in the current altered condition, migrating waterfowl and shorebirds and nesting seabirds utilize it extensively. Acreage converted from natural conditions for human uses are not unusual and make up a significant percentage of the acreage of the Refuge System. But refuge lands in San Diego have, and continue to receive, more than their fair share of abuse.

However, there is cause for optimism. Through land acquisition, species management programs, captive propagation of listed species, control of invasive species and particularly habitat enhancement and restoration, the ability of San Diego Refuges to sustain life is being greatly enhanced. Habitat restoration plays the most critical role because without it, places like San Diego that have been so impacted by human activity may never recover - or at least not in time to help the many species that solely depend upon them.

I have heard the past century referred to as the age of degradation but I am betting that this century will be the age of restoration. The transformation in San Diego is due to dedicated refuge staff, federal and state agency partners, private conservation organizations and involved stakeholders. While the policy at one time was called ecological integrity, it is the integrity of individuals who care so deeply about wildlife conservation that will restore our wild places to more natural conditions and move all of our refuges - both in San Diego and across the Refuge System - toward the other end of the spectrum. 🦋

So Long, San Diego

Mendel Stewart



In my 5 years in San Diego I learned many things about land, habitat, and wildlife management. While these things are extremely important and will serve me well in whatever jobs come my way in the future, the most important thing I learned was the critical role individuals can play in conservation. I had the opportunity to work with some outstanding people who acted upon their love of wildlife and wild places to truly make a difference. Some of these people I had the chance to work with on a daily basis and some less often, but they all showed me that caring people can make a difference. Thank you for that opportunity. You will all be missed.

Mendel Stewart will become project leader at Don Edwards San Francisco Bay National Wildlife Refuge in July. 🦋



FIRE CREW INSTRUCTS LOCAL FIRE DEPARTMENTS

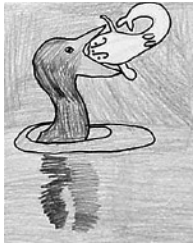
Billy Frederick, Fire Engineer

This March, Captain James Mitchell and Engineer Billy Frederick had the opportunity to develop a lesson plan and instruct approximately 500 firefighters from the South Bay Municipal Fire Departments during In-Service Training for their annual wildland fire refresher.

The training covered critical wildland fire topics and was taught in twelve, four hour sessions. It included ten Standard Firefighting Orders, eighteen Watch Out Situations, Lookouts, Communications,

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HABITAT HEROES



of South Bay

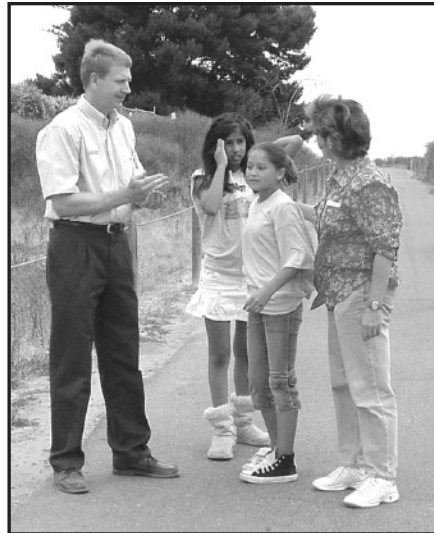
Barbara Simon

*Information & Education Specialist
San Diego NWR Complex*

Several years ago, the National Wildlife Refuge Association asked the Complex to develop a pilot program for students who would use Geographic Information System (GIS) technology to map exotic species on the South San Diego Bay Refuge. When funding for that project disappeared, Mendel Stewart, Project Leader for the San Diego Complex, found invasive species funds that had an education component, and Habitat Heroes was born. Because teachers, schools and other participants had already been contacted, our friend Leslie Reynolds of the Endangered Habitats League stepped in to coordinate a small elementary school program. Our intention was to grow the project into a K- Junior College student-led mentoring program. Like all ideas, the program has grown and changed based on community needs.

On June 2nd, two years later, 400 students from Imperial Beach and Bayside Elementary schools presented their projects and took local officials, family and friends on a tour of their restoration site. Habitat Heroes integrates science, reading, and math standards into a curriculum that teaches students about their watershed and

the larger ecosystem in which they live. Carmela Castrejon, a well-known artist from Tijuana, inspires students to represent creatively what they've learned in the classroom and at the restoration site through art projects such as murals and the silk screens on their Habitat Heroes t-shirts. Most important perhaps, are field opportunities at the Tijuana Slough National Wildlife Refuge, and student work in the field at the South Bay refuge identifying non-native and native plants and restoring a small portion of that refuge. Tim



Mendel Stewart and Leslie Reynolds receive information on plant restoration from IB Elementary School tour guides.

Schauwecker, our restoration expert, works with students at the restoration site in order to introduce them to native plant communities and their functions. By being participants, students also become stakeholders and supporters of the refuge.

This fall we're going to take a deep breath, evaluate results, review curriculum and develop a complete package of curricula, activities and logistics for grades three and four. Along with the packet for those grades, we'll provide ongoing opportunities for fifth and sixth graders in the schools whose students have earlier par-

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Teachers receive awards from Jonathan Hardy, Office of State Senator Denise Ducheny and Dianna Zamora, Office of Assemblyman Juan Vargas. Bayside and Imperial Beach schools also received a proclamation from the City of Imperial Beach.

October, November, December, January, February, March and April Showers Have Brought...

John A. Martin, *Wildlife Biologist, San Diego*

The chaparral and scrub-covered hills of the San Diego National Wildlife Refuge look especially green this spring, in the wake of record rainfall. But a closer look reveals that the many-shaded mosaic of green is spangled with a constellation of maroon, cream, scarlet, violet, pink, yellow, and deep blue, in myriad exquisite forms, as an exceptional abundance and diversity of plants bloom in response to the rains.

Because the Refuge includes blocks of relatively undisturbed native soil and vegetation, the plant communities include several rare plant species. The diverse sage scrub, chaparral, and grassland communities of coastal San Diego County support plant species found nowhere else on earth, and in our rapidly growing city, the refuge's role as a ... well, a "refuge" becomes more important every year.

The role of the refuge and our conservation partners in the preserve system is to ensure that populations of these rare species persist. Initially, it might seem that simply precluding development-related habitat destruction should be enough to ensure that the refuge's role is fulfilled. But changes to the landscape, air, and species composition that San Diego's rapid growth has brought about may threaten these species in little-understood ways (e.g., reduced metapopulation function, nitrogen deposition in soil, impacts to pollinators, and competition from foreign species...). These ecological changes may cause these small, disjunct populations of plants to disappear, despite our best efforts to protect their habitat from direct negative impacts.

To ensure that the disappearance of a local population of a rare plant doesn't take us by surprise, refuge biologists and our Multiple Species Conservation Plan partners monitor these plant populations. Our goal is to detect significant declines; declines outside the normal variation in abundance and distribution of the plants. If declines are detected early, we can take action to correct the ecological problem that is causing the decline, before the population "winks out."

Plant species that we're monitoring this year include:



Photograph by David Griffin

Variegated dudleya (*Dudleya variegata*) that hides its tiny, fat blue-green leaves in the thin soil of rock outcrops;



Photograph by John Martin

The San Diego goldenstar (*Muilla clevelandii*). This species is difficult to tell from the common goldenstar (*Bloomeria crocea*). Both species look like grace-

ful, slender, yellow-flowered wild onions;



Photograph by David Griffin

Otay tarplant (*Deinandra conjugens*). This weedy-looking plant prefers grasslands and sage scrub;

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WETLAND OF INTERNATIONAL IMPORTANCE



2005 Honor Given To Tijuana River National Estuarine Research Reserve

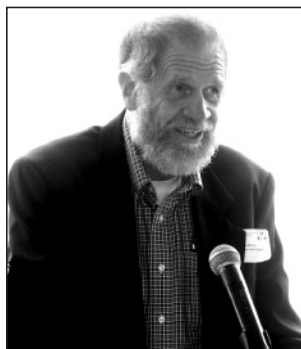
Barbara Simon, Information & Education Specialist, San Diego NWR Complex



The “Wetland of International Importance” designation of the Tijuana River National Estuarine Research Reserve and the Tijuana Slough National Wildlife Refuge located in Impe-

rial Beach was celebrated on April 22nd, Earth Day, by dignitaries from both sides of the Border.

The Tijuana River National Estuarine Research Reserve and the Tijuana Slough National Wildlife Refuge (also known as the Tijuana Estuary) is one of only 22 notable U.S. sites. Known to San Diegans as one of the birding “hot spots” of the County, the Reserve provides habitat for more than 370 bird species, including nine federally listed as threatened or endangered. The Reserve is unique in the system, sharing a watershed with Mexico and is a major stopover for migrating birds using the Pacific flyway.



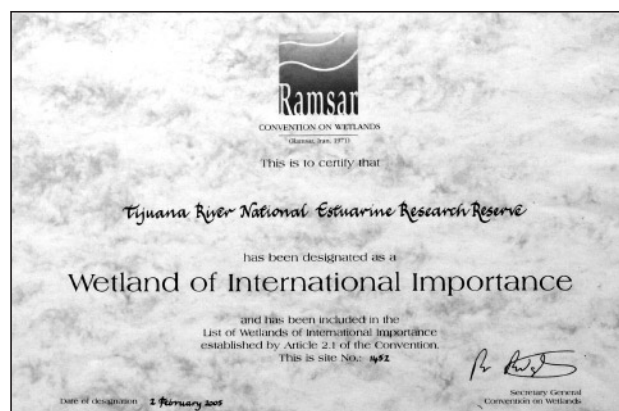
Dr. Mike McCoy

Dr. Mike McCoy, a founding member of the Southwest Wetlands Interpretive Association and Imperial Beach resident worked for years to gain such recognition for the Reserve. “This comes in the Estuary’s 25th anniversary year and is one of

the defining moments in our work of conserving the Tijuana Estuary; it’s a great birthday present.”

The Estuary’s bi-national education, outreach and restoration programs continue to change the face of the estuary by providing educational information to the community and habitat for a great variety and abundance of migratory birds and plant species. Over 60,000 visitors to the Estuary each year enjoy the tranquility of one of the last of southern California’s wetlands not bisected by a road or rail trestle.

The Reserve provides habitat for more than 370 bird species, including nine federally listed as threatened or endangered.



In 1971, the Ramsar Convention (named after Ramsar, Iran) became the only international agreement dedicated to the worldwide protection of a particular type of ecosystem. Currently there are 144 member nations working together to coordinate wetland conservation efforts. Because many wetland habitats span international boundaries and many wetland species are migratory, Ramsar countries recognize the importance of supporting wetland management, research and education, outreach and training programs beyond their own borders. The United States became a signatory of the convention treaty in 1987.

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Environmental Education at the Sherman Heights Community Center

Barbara Simon, Information & Education Specialist, San Diego NWR Complex


What would we do without partners? Judy Ramirez, the Museum to Schools Coordinator for the San Diego Natural History Museum, the Sherman Heights Community Center, El Museo del Pueblo and the San Diego NWR Complex received a Nature of Learning grant from the National Fish and Wildlife Foundation to help fund an environmental education and arts program for the children of Barrio Logan located in South San Diego.

Like all of our programs, this one changed and expanded to meet the needs of the community. Students experienced our wild places through visits to Sweetwater Marsh and by participating in our Sweetwater Safari field curricula. Students met twice weekly at the Center to learn about the habitat and wildlife of the Marsh, then reinforced that knowledge with field trips to the Chula Vista Nature Center and the Sweetwater refuge, as well as through artistic expression. Their artwork will soon be posted at the San Diego NWR Complex's Hands on the Land site at www.handsontheland.org



Students at Sweetwater Marsh field trip

trip to the garden site and to visit a mature native plant garden, they made suggestions for the garden design. Community artist Salvador Torres incorporated their input along with that of community members to create the garden design. Members of Scout Troop 53 prepared the site and helped the students plant the native plants and Barrio Logan community members maintain the garden. On April 30, the community dedicated the garden in a ceremony that included a play written and performed by the children.

The garden itself was funded through other grants from the National Wildlife Federation's Backyard Habitat program, KSWB Cares for Kids, and the McCarthy Family Foundation. 



Students planting the garden

In addition, students, in collaboration with the community and Scout Troop 53, created a butterfly garden next to the Paradise Senior Citizens Center in Chicano Park. First, they learned about butterfly life cycles and their relationship to host plants. After going on a field



John Martin and Debbie Good at the dedication of the butterfly garden in Chicago Park

Border Agency Fire Council Celebrates 10 year Anniversary

Bill Molumby

*Fire Management Officer
San Diego NWR Complex*




A ceremonial charter signing ceremony was held June 9th at the California Department of Forestry and Fire Protection (CDF) headquarters in El Cajon to celebrate the 10 year anniversary of the Border Agency Fire Council (BAFC). The Fish and Wildlife Service was represented by Mendel Stewart, Project Leader of the San Diego NWRC and Bill Molumby, Fire Management Officer. Others in attendance included the state director of CDF, Dale Geldert, BLM state director Mike Poole, county supervisor Diane Jacobs, representatives from state senators Denise Ducheny, Bill Morrow, and Dennis Hollingsworth, as well as many other federal, state and local government agency heads. Additionally the Mexican Consul General - San Diego, attended and announced his government's decision to join the agency.

BAFC was formed during the 1996 fire season due to a dramatic increase in wildland fire activity in southern San Diego County and the concern for human safety. Investigators determined that undocumented immigrants were causing these fires as they crossed into the United States through the San Ysidro Mountains. After "Operation Gatekeeper" tightened security near Tijuana, the immigration patterns shifted east. This meant that hundreds of people were walking every day through the rugged, inland terrain. This area, which had previously had very little wildfire activity, was suddenly experiencing a huge increase. Improperly extinguished campfires were the main culprits. The wildfires were also spreading rapidly, especially uphill. Since the steep terrain makes travel slow and difficult, fire officials believed the threat to human safety was a crisis proportion. Therefore, the Border

Agency Fire Council was formed with the goal of saving lives and property.

The Border Agency Fire Council is made up of 23 organizations representing fire protection, law enforcement, legislators, health care workers, natural resource managers, elected officials, and the Mexican Government. The Fish and Wildlife Service was one of the founding members. The council meets quarterly during the winter and every six to eight weeks during fire season at the San Diego headquarters of the California Department of Forestry and Fire Protection in El Cajon, California. Through collaborative efforts, the Council has altered the environment to allow better access into the wildland for emergency responders. They have enhanced communication among responders on both sides of the border, and have reached out to people in both countries with fire safety messages.

Some of the accomplishments of BAFC are improved radio communication between agencies; a Resource Guide for Border areas; an annual media safety day co-hosted by the Cleveland National Forest and the California Department of Forestry and Fire Protection; trash removal from wilderness areas; Spanish warning signs posted in border areas; annual accomplishment reports; and, regular elected official briefings. Mexican firefighters and BAFC communicators distributed flyers on both sides of the border to warn of fire and exposure danger and make personal contacts at locations known to be frequented by immigrants.

For additional information on the BAFC, contact Bill Molumby (619) 669-6651. 



BAFC Representatives Gather for Updated Operating Plan Signing

Habitat Heroes of the South Bay *(cont. from page 4)*

ticipated in Habitat Heroes. One idea is to have older students plant and monitor test plots in a garden area identified in our Comprehensive Conservation Plan for South Bay as a public viewing site.



Students present projects to family and friends

Of course, all of our plans and ideas are based on whether or not we'll receive funding from the many grants we've submitted this year; over \$50,000.

Should we receive the entire amount, we'll add a schoolyard habitat section as well as a design for a children's garden at the South San Diego Bay Refuge viewing area. Contrary to public perception, no refuge operational funds are targeted solely to education, so all of our funding must come out of station funds and/or through grants.



Habitat Heroes

Habitat Heroes is a very exciting project, but one that requires a lot of support from our partners at the Tijuana Estuary, the Port of San Diego, Endangered Habitats League and from refuge staff, restoration experts, and our wonderful classroom teachers who bring knowledge alive for their students. If you are interested in becoming an aide in the classroom and/or for field work (or if you can translate concepts into Spanish), please contact Leslie Reynolds at (619) 437-7989. 🦋

October, November, December, January, February, March, April Showers Have Brought... *(cont. from page 5)*



Photograph by John Martin

San Diego ambrosia (*Ambrosia pumila*), with its finely dissected, silvery leaves;



Photograph © Roxanne Bittman and CNPS

San Diego thorn-mint (*Acanthomintha ilicifolia*). This sticky, diminutive member of the mint family has a strong pennyroyal odor, and usually grows in discreet patches of clay soil. 🦋

FIRE CREW INSTRUCTS LOCAL FIRE DEPARTMENTS

(cont. from page 3)

Escape Routes and Safety Zones, 2005 fire predictions, review of fire fatality incidents, fire operations, and fire shelters. Knowledge of wildland fire techniques is a valuable additional asset for municipal fire departments whose experience may not automatically include these types of fire situations.

The classes were a great success and once again provided a good opportunity for the Fish and Wildlife Service to interact, prior to a fire emergency, with five local fire departments whose jurisdictions are either adjacent to or overlap those of the San Diego National Wildlife Refuge Complex. 🦋


WETLAND OF INTERNATIONAL IMPORTANCE (Continued from page 6)

The U.S. Fish & Wildlife Service and the Department of State are the administrative authorities for this Convention in the U.S., and it is this treaty that serves as the cornerstone for the Service's International Wetlands Program. The qualifying criteria to be a Ramsar site are based on the wetland's distinguishing characteristics and its ability to support valued species or key wildlife populations. Mendel Stewart, Project Leader of the San Diego National Wildlife Refuge Complex, spoke about the future of the Reserve noting that, "the Estuary's designation as a Wetland of International Importance is another building block that will help the Service and our partners address watershed-wide ecological problems."



Left to right: Dr. Mike McCoy, Fred Cagle, SWIA Councilwoman Patricia McCoy, City of Imperial Beach, Paul Romero, Deputy Director, and Ronilee Clark, California State Parks, Peter Douglas, Mendel Stewart, Councilwoman Mayda Winter, City of Imperial Beach.


Attendees and participants during the day included Dwight Shellman, President of the U.S. Ramsar Committee; Herb Raffaele, Chief, Division of International Conservation for the Service; Joyce Namde, U.S. State Department; State Senator Denise Ducheny; and Peter Douglas, Director of California Coastal Commission along with a variety of others.

The event was hosted by the Southwest Wetlands Interpretive Association with assistance from State Parks and Refuge staffs. In addition, a U.S. - Mexico Ramsar Workshop was held to discuss how designations benefit wetlands and to help other sites with future designations. 

The Persistence of Life (Continued from page 2)

and began vocalizing in ways we had not heard her do previously. She looked for all the world like a proud parent. The little owlet will be removed from Nipper before it starts to become imprinted and think it's a screech owl rather than a burrowing owl, but for now, they are together.

We are also in the midst of a mysterious die-off of several species of seabirds and shorebirds, and of most concern to us, we have lost at least 26 threatened western snowy plovers in the last three months to an, as yet, unidentified illness. Veterinarians we are working with hypothesize that some sort of toxin may be involved. They of course live in the same environment we live in, just with a lifestyle that exposes them to the food web of the near-shore waters of the sea. We hope to find funding to investigate this die-off. In the mean time, we are doing what we can to monitor the conditions of our environment and the health of our wildlife.

Life and death, sickness and health, and strange combinations of nurturing comprise this world we have made for ourselves. Will we have the wisdom to listen to nature, to monitor, to measure, to investigate and to act? Do we care enough to learn what it is that we can and cannot do to influence the course of life in the living ecosystems we are part of? Do you? 




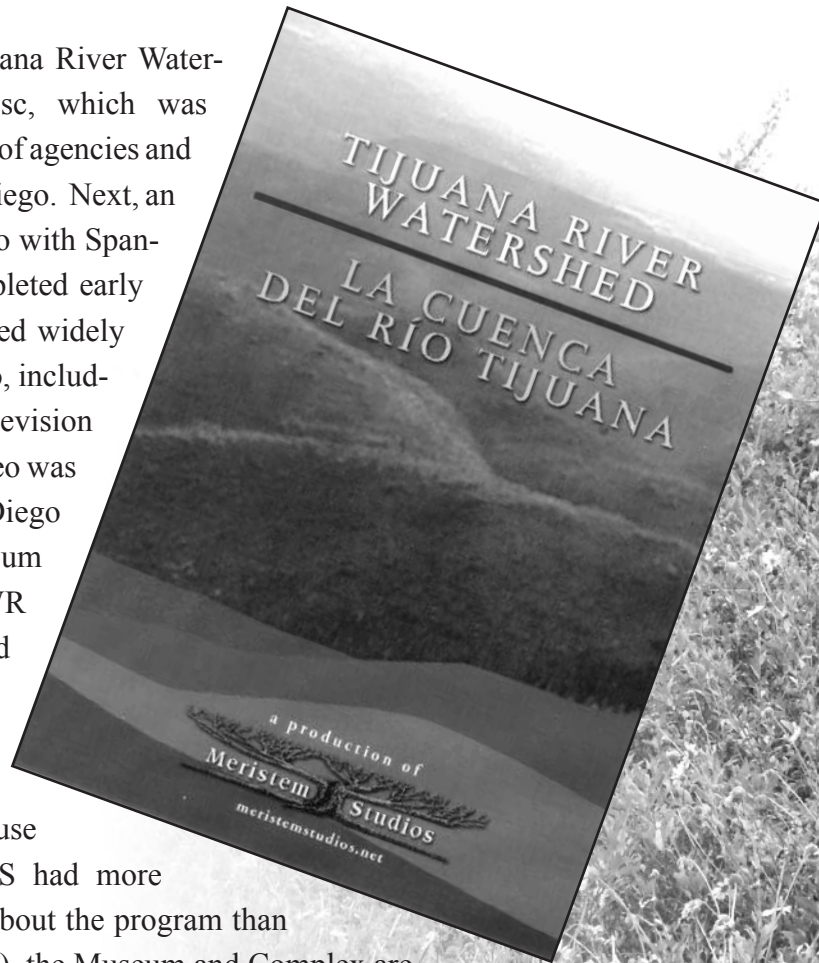
Tijuana River Watershed Communications Project

Video, Resource Guide and Compact Disc Available

First came the Tijuana River Watershed compact disc, which was developed by a variety of agencies and organizations in San Diego. Next, an English language video with Spanish subtitles was completed early this year and distributed widely in the U.S. and Mexico, including airing on KPBS television in San Diego. The video was developed by the San Diego Natural History Museum and the San Diego NWR Complex and funded through a grant received from the Service's International Division. Because of its popularity (PBS had more calls for information about the program than any other in that series), the Museum and Complex are attempting to find funding for an all Spanish language version for distribution and educational use in Mexico.

Produced along with the video is a Resource Guide for Teachers funded by the Cleveland National Forest. The public affairs office of the Cleveland will also be putting the compact disc on line so that everyone will have access to its information.

The three parts of the Project are available to interested organizations and institutions, and are a great aid in teaching about the importance of watersheds to the entire community. For more information or materials, please contact: Barbara Simon, (619) 691-1262. 



NOTES FROM THE REFUGE

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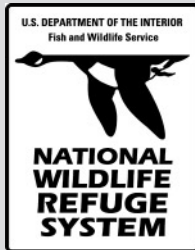
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Contributors: Brian Collins, Billy Frederick, John
Martin, Bill Molumby, Barbara Simon, Mendel Stewart.

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Bittman and CNPS, George Dowden, David Griffin, John
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For information contact Barbara Simon, (619) 691-1262.

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A boy and his new friend! Read about
Environmental Education at the
Sherman Heights Community Center, page 7.

Sweetwater Marsh NWR
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Chula Vista, CA 91910



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